

WHAT IS CLAIMED IS:

1. A magnetic resonance imaging apparatus comprising:
a static magnetic field generating unit that generates a static magnetic field of a constant magnetic field intensity;
an gradient magnetic field generating unit that generates a magnetic field strength gradient;
a high-frequency magnetic field generating unit;
a detecting unit that detects nuclear magnetic resonance signals generated from an object to be examined; and
a display unit that displays a result of the detection, wherein the magnetic resonance imaging apparatus further comprises:
a magnetic field correcting unit that generates an additional magnetic field for making uniform a space distribution of the static magnetic field;
a temperature detecting unit that detects a temperature of the static magnetic field generating unit and/or surroundings thereof; and
a control unit that controls the magnetic field correcting unit based on the temperature detected by the temperature-detecting unit.

2. A magnetic resonance imaging apparatus according to claim 1, wherein the control unit has a temperature setting unit that sets a temperature detected by the temperature-detecting unit.

3. A magnetic resonance imaging apparatus according to claim 1, wherein the temperature detecting unit detects temperatures of at least two positions.

4. A magnetic resonance imaging apparatus according to claim 1, wherein the magnetic field correcting unit comprises a shim coil for generating an additional magnetic field and a shim power

source that supplies a current to the shim coil.

5. A magnetic resonance imaging apparatus according to claim 1, wherein the control unit comprises a voltage generating unit that generates a voltage corresponding to an ununiformity component of the magnetic field at the temperature detected by the temperature detecting unit, a voltage/current converter that converts the voltage output by the voltage generating unit to current, and a supplying unit that supplies to the magnetic field correcting unit the current generated from the voltage/current converter.

6. A magnetic resonance imaging apparatus according to claim 1, wherein the magnetic field correcting unit generates at least one additional magnetic field of linear term of y , quadratic term of z and quartic term of z , where z is the direction of the static magnetic field and y is one direction orthogonal to z .

7. A magnetic resonance imaging apparatus according to claim 1, wherein the temperature detecting unit is disposed near the static magnetic field generating unit and/or in a room where the static magnetic field generating unit is placed.

8. A method of maintaining a static magnetic field generated by a static magnetic field generating unit uniform in a magnetic resonance imaging apparatus, by generating an additional magnetic field, the method comprising the steps of:

calculating a temperature dependence of an ununiform component of a space distribution of the static magnetic field;

detecting a temperature of the static magnetic field generating unit; and

calculating a strength of the additional magnetic field based on the detected temperature and the temperature dependence.

9. A method according to claim 8, wherein steps from the temperature detection to the generation

